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INFORMATION FOR STANDARDIZED RECIPES

Standardized recipes are a necessity for a well-run food service operation. All of the recipes have been developed, tested and standardized for product quality, consistency and yield. Recipes are the most effective management tool for guiding the requisitioning of supplies and controlling breakouts and inventory. The U. S. Dietary Guidelines were among the many considerations in both the selection and development of the recipes included in the file. Many of the recipes have been modified to reduce fat, salt and calories. For new and experienced cooks, consistent use of standardized recipes is essential for quality and economy. The **Armed Forces Recipe Service** contains over 1600 tested recipes yielding 100 portions printed on cards.

Yield - The quantity of cooked product a recipe produces. The yield for each recipe in the Armed Forces Recipe is generally given as 100 portions and in some recipes in count or volume, e.g., 2 pans, 8 loaves, 6-1/2 gallons. Portion size is key to determining the quantity of food to be prepared. Many recipes also specify the weight per portion. For example, 3/4 cup (6-1/2 ounces) Beef Stroganoff.

Ingredients Column – Ingredients are listed in the order used. The specific form or variety of each ingredient is indicated. For example:

Flour, wheat, general purpose
Flour, wheat, bread

Eggs, whole
Egg whites

Sugar, granulated
Sugar, brown

Measure, Weights, and Issue Columns – Measures and Weights indicate the Edible Portion (E.P.) quantity of the ingredient required to prepare the recipe for 100 portions. The issue column represents the As Purchased (A.P.) quantity required if this amount is different from the E.P. quantity.

Method Column - Describes how the ingredients are to be combined and cooked. For example, the method will describe the order in which to sift dry ingredients, to thicken a sauce, or to fold in beaten egg whites. The method contains directions for the most efficient order of work, eliminating unnecessary tools and equipment and unnecessary steps in preparation.

INFORMATION FOR STANDARDIZED RECIPES

RECIPE CONVERSION

Since few dining facilities serve exactly 100 persons, and, in some instances, the acceptable size portion may be smaller or larger, it is often necessary to reduce or increase a recipe. You may adjust the recipe to yield the number of portions needed, or to use the amount of ingredients available, or to produce a specific number of smaller portions. When increasing or decreasing a recipe, the division or multiplication of pounds and ounces is simplified when decimals are used.

1. To convert the quantities to decimals, use this table:

Weight in Ounces	Decimal of Pound	Weight in Ounces	Decimal of Pound
1	.06	9	.56
2	.13	10	.63
3	.19	11	.69
4 (1/4 lb)	.25	12 (3/4 lb)	.75
5	.31	13	.81
6	.38	14	.88
7	.44	15	.94
8 (1/2 lb)	.50	16 (1 lb)	1.00

For example: 1 lb 4 oz is converted to 1.25 lb; 2 lb 10 oz is converted to 2.63 lb.

2. To adjust the recipe to yield a specific number of portions:

First -- Obtain a working factor by dividing the number of portions needed by 100. For example:

$$348 \text{ (portions needed)} \div 100 = 3.48 \text{ (Working Factor)}$$

Then -- Multiply the quantity of each ingredient by the working factor. For example:

$$1.25 \text{ lb (recipe)} \times 3.48 \text{ (Working Factor)} = 4.35 \text{ lb (quantity needed)}.$$

The part of the pound is converted to ounces by multiplying the decimal by 16. For example:

$$.35 \text{ lb} \times 16 \text{ ounces} = 5.60 \text{ ounces}$$

After the part of the pound has been converted to ounces, use the following scale to “round off”:

.00 to .12	=	0	.63 to .87	=	3/4 ounce
.13 to .37	=	1/4 ounce	.88 to .99	=	1 ounce
.38 to .62	=	1/2 ounce			

Thus 5.60 ounces will be “rounded off” to 5 1/2 ounces, and 4 lb 5 1/2 ounces will be the quantity needed (equal to 4.35 lb).

INFORMATION FOR STANDARDIZED RECIPES RECIPE CONVERSION

3. To adjust the recipe for volume:

First -- Obtain a working factor by dividing the number of portions needed by 100 as shown in Step 2 of A.1, Recipe Conversion.

$$333/100 = 3.33$$

Then -- Multiply the quantity of each ingredient by the working factor. You will round off to the nearest 1/4 teaspoon. For example, the recipe calls for 6 gallons of water per 100 portions. Portions to prepare are 333.

$$333 / 100 = 3.33 \text{ Working Factor (W/F)}$$

1. W/F x No. of gallons	= gallon	3.33 W/F x 6	= 19.98 GL
2. Decimal (of gal) x 4	= quart (QT)	.98 GL x 4	= 3.92 QT
3. Decimal (of quart) x 2	= pint (PT)	.92 QT x 2	= 1.84 PT
4. Decimal (of pint) x 2	= cup (C)	.84 PT x 2	= 1.68 C
5. Decimal (of tbsp) x 16	= tablespoon (TBSP)	.68 C x 16	= 10.88 TBSP
6. Decimal (of tbsp) x 3	= teaspoon (TSP)	.88 TBSP x 3	= 2.64 TSP
7. Round off decimal portion (see paragraph 2)		.64 TSP	= 3/4 TSP

The amount of water needed for 333 portions is: 19 GL, 3 QT, 1 PT, 1 C, 10 TBSP and 2 3/4 TSP.

NOTE: 4 QT = 1 GL 2 C = 1PT 3 TSP = 1 TBSP
 2 PT = 1 QT 16 TBSP = 1C

4. To adjust the recipe on the basis of a quantity of an ingredient to be used:

First -- Obtain a Working Factor by dividing the pounds you have to use by the pounds required to yield 100 portions.

For example:

$$102 \text{ lb} \div 30 \text{ (lb per 100 servings)} = 3.40 \text{ (Working Factor)}$$

Then -- Multiply the quantity of each ingredient in the recipe by the Working Factor.

5. To adjust the recipe to yield a specific number of portions of a specific size:

First -- Divide the desired portion size by the standard portion of the recipe.

$$3 \text{ oz (desired size)} \div 4 \text{ oz (standard portion)} = .75$$

$$348 \text{ (servings needed)} \times .75 = 261$$

$$261 \div 100 = 2.61 \text{ (Working Factor)}$$

Then -- Multiply the quantity of each ingredient in the recipe by the Working Factor.

DEFINITION OF TERMS USED IN FOOD PREPARATION

Bake	To cook by dry heat in an oven, either covered or uncovered.
Barbecue	To roast or cook slowly, basting with a highly seasoned sauce.
Baste	To moisten food with liquid or melted fat during cooking to prevent drying of the surface and to add flavor.
Batch Preparation	A predetermined quantity or number of servings of food that is to be prepared at selected time intervals in progressive cookery for a given meal period to ensure fresh, high quality cooked food to customers.
Beat	To make a mixture smooth by using a fast regular circular and lifting motion which incorporates air into a product.
Blanch.....	To partially cook in deep fat, boiling water or steam.
Blend	To mix two or more ingredients thoroughly.
Boil	To cook in liquid at boiling point (212° F.) in which bubbles rise and break at the surface.
Braise.....	To brown in small amount of fat, then to cook slowly in small amount of liquid below the boiling point in a covered utensil.
Bread	To cover with crumbs or other suitable dry coating ingredient; or to dredge in a mixture of flour seasonings, and/or condiments, dip in a mixture of milk and slightly beaten eggs and then dredge in crumbs.
Broil.....	To cook by direct exposure to heat.
Brown	To produce a brown color on the surface of food by subjecting it to heat.

Chop	To cut food into irregular small pieces.
Cream	To mix until smooth, so that the resulting mixture is softened and thoroughly blended.
Crimp	To pinch together in order to seal.
Cube.....	To cut any food into square-shaped pieces.
Dice	To cut into small cubes or pieces.
Dock	To punch a number of vertical impressions in a dough with a smooth round stick about the size of a pencil to allow for expansion and permit gases to escape during baking.
Dredge	To coat with crumbs, flour, sugar or corn meal.
Fermentation.....	The process by which yeast acts on the sugar and starches in the dough to produce carbon dioxide gas and alcohol, resulting in expansion of the dough. During this period, the dough doubles in bulk.
Flake	To break lightly into small pieces.
Fold	To blend two or more ingredients together with a cutting and folding motion.
Fry	To cook in hot fat.
Garnish	To decorate with small pieces of colorful food.

Glaze.....	A glossy coat given to foods, as by covering with a sauce or by adding a sugary syrup, icing, etc.
Gluten	A tough elastic protein that gives dough its strength and ability to retain gas.
Grate	To rub food on a grater and thus break it into tiny pieces.
Grill	To cook, uncovered, on a griddle, removing grease as it accumulates. No liquid is added.
Knead.....	To work dough by folding and pressing firmly with palms of hands, turning between foldings.
Marinade.....	A preparation containing spices, condiments, vegetables, and aromatic herbs, and a liquid (acid or oil or combination of these) in which a food is placed for a period of time to enhance its flavor or to increase its tenderness.
Marinate.....	To allow to stand in a marinade to add flavor or tenderness.
Mince.....	To cut or chop into very small pieces.
Panbroil	To cook uncovered in a hot frying pan, pouring off fat as it accumulates.
Pare	To cut away outer covering.
Peel	To remove the outer layer of skin of a vegetable or fruit, etc.

Progressive Cookery	The continuous preparation of food in successive steps during the entire serving period (i.e., continuous preparation of vegetables, cook-to-order hamburgers, steaks, fried eggs, pancakes). This procedure ensures fresh, high quality cooked food to customers on a continuous basis. See Batch Preparation.
Proof	To allow shaped and panned yeast products like bread and rolls to double in size under controlled atmospheric conditions.
Reconstitute	To restore to liquid state by adding water. Also to reheat frozen prepared foods.
Rehydrate.....	To soak, cook, or use other procedures with dehydrated foods to restore water lost during drying.
Roast.....	To cook by dry heat; usually uncovered, in an oven.
Roux	Roux is a French word for a mixture of flour and fat, cooked to eliminate the raw, uncooked taste of flour.
Sauté	To brown or cook in small amount of fat.
Scald	To heat a liquid over hot water or direct heat to a temperature just below the boiling point.
Scale	To measure a portion of food by weighing.
Scant	Not quite up to stated measure.
Score	To make shallow cuts across top of a food item.
Seasoned Flour or Crumbs	A mixture of flour or crumbs with seasonings.

Shred.....	To cut or tear into thin strips or pieces using a knife or a shredder attachment.
Sift	To put dry ingredients through a sieve.
Simmer	To cook gently in a liquid just below the boiling point (190° F. - 210° F.); bubbles will form slowly and break at the surface.
Slurry	A lump-free mixture made by whipping cornstarch or flour into cold water or other liquids
Steam	To cook over or surrounded by steam.
Stew	To simmer in enough liquid to cover solid foods.
Stir	To mix two or more ingredients with a circular motion.
Temper.....	To remove from freezer and place under refrigeration for a period of time sufficient to facilitate separation and handling of frozen product. Internal temperature of the food should be approximately 26° F. to 28° F.
Thaw	To remove from freezer and place under refrigeration approximately 18-48 hours. Internal temperature should be above 30° F.
Toss	To mix ingredients lightly.
Wash.....	The liquid brushed on the surface of unbaked pies or turnovers to give a golden brown color to the crust or on the surface of proofed breads and rolls before baking and on baked bread and rolls to give a shine to the crust.
Whip	To beat rapidly with wire whip to increase volume by incorporating air.

TABLE OF MEASURING EQUIVALENTS

TSP	TBSP	FLUID OUNCES	CUPS	SCOOPS	LADLES	FLUID MEASURE
3	1	1/2		1-No. 40		
	1-1/2	3/4		1-No. 30	Size 0	
	2	1		1-No. 24		
	2-2/3	1-1/3		1-No. 20		
	3	1-1/2		1-No. 16	Size 1	
	4	2	1/4	1-No. 12		
	5-1/3	2-2/3	1/3	1-No. 10		
	6	3	3/8	1-No. 8	Size 2	
	8	4	1/2	1-No. 6		
	10-2/3	5-1/3	2/3			
	12	6	3/4			
	14	7	7/8			
	16	8	1		Size 3	1/2 pt
	18	9	1-1/8			
		12	1-1/2		Size 4	3/4 pt
		16	2			1 pt
		24	3			1-1/2 pt
		32	4			1 qt
		64	8			2 qt
		128	16			1 gal

NOTE: 1. Use ladles to serve individual portions of liquid or semi-liquid foods.

2. Scoop number indicates the number of portions per quart.

TABLE OF WEIGHTS AND MEASURES FOR CAN SIZES

CAN SIZE	AVERAGE NET WEIGHT OR FLUID MEASURE PER CAN (SEE NOTE)	AVERAGE CUPS PER CAN	APPROX. CANS PER CASE	NO. CANS EQUIV. NO. 10 CN
No. 10	6 lb 8 oz	12-1/2	6	1
No. 3 cyl	3 lb 2 oz (46 fl oz)	5-3/4	12	2
No. 3 (vacuum)	1 lb 7 oz	2-3/4	24	4-1/2
No. 2-1/2	1 lb 12 oz	3-1/2	24	4
No. 2	1 lb 4 oz	2-1/3	24	5
No. 303	1 lb	2	24	7
No. 300	14 oz	1-3/4	24	7
No. 2 (vacuum)	12 oz	1-1/2	24	8
No. 1 picnic	11 oz	1-1/4	48	10

NOTE: The net weight on can or jar labels differs among foods due to different densities of foods. For example: A No. 10 cn contains 6 lb 3 oz sauerkraut or 7 lb 5 oz cranberry sauce.

TABLE OF EGG EQUIVALENTS

FRESH WHOLE EGGS (SHELLED)			DEHYDRATED EGG MIX		
Medium Size	Weight	Volume	Weight	Volume (Approx.)	Water to be Added
1 egg	1.6 oz	3 tbsp	1/2 oz	2 tbsp	2-1/2 tbsp
2 eggs	3.2 oz	6 tbsp	1 oz	1/4 cup	5 tbsp
10 eggs*	1 lb	1-7/8 cups	5 oz	1-1/4 cups	1-1/2 cups
12 eggs	1 lb 3.2 oz	2-1/4 cups	6 oz	1-1/2 cups	scant - 2 cups
20 eggs	2 lb	3-3/4 cups	10 oz	2-1/2 cups	3 cups
40 eggs	4 lb	7-1/2 cups	20 oz	1-1/4 qt (1-No. 3 cyl can)	1-1/2 qt

* 10 large eggs = 1 lb 2 oz

NOTES:

1. Frozen Whole Eggs and Frozen Egg Whites may be used in equivalent weights to shelled fresh whole eggs.
2. Dehydrated Egg Mix may be used in most recipes requiring whole eggs as shown in the table above. **DO NOT USE RECONSTITUTED EGGS IN UNCOOKED SALAD DRESSINGS OR OTHER RECIPES WHICH DO NOT REQUIRE COOKING. RECONSTITUTED DEHYDRATED EGG MIX SHOULD BE USED WITHIN ONE HOUR UNLESS REFRIGERATED. DO NOT HOLD OVERNIGHT.** For greater accuracy, weigh dehydrated egg mix.

3. *Reconstitution Methods for Dehydrated Egg Mix*

- a. Method 1. Place dehydrated egg mix in bowl; stir with a wire whip; add 1/2 of the water; whip until a smooth paste is formed; add remaining water; whip until mixture is blended.
- b. Method 2. Add dehydrated egg mix to water; stir to moisten; let stand 5 minutes; whip until smooth.

For Baked Products

- a. Method 1. Reconstitute dehydrated egg mix; substitute for eggs in recipe.
- b. Method 2. Sift dehydrated egg mix with dry ingredients; add water in step in Method column where whole eggs are incorporated.

For Batter Dips. Dehydrated egg mix may be reconstituted and used.

GUIDELINES FOR CONTAINER YIELDS FOR CANNED FRUITS

TYPE OF FRUIT	PORTION SIZE (Approximate)	CAN SIZE	NO. OF CANS FOR 100 PORTIONS
Applesauce	1/2 cup	No. 303 cn	25
		No. 10 cn	4
Applesauce, Instant	1/2 cup	No. 2-1/2 cn	4
Apricots, halved	3 to 5 halves	No. 2-1/2 cn	16
		No. 10 cn	4
Blueberries	1/2 cup	No. 10 cn	4
Cherries, sweet, dark or light, pitted or unpitted	1/2 cup	No. 303 cn	25
		No. 10 cn	4
Cranberry Sauce, strained	1/4 cup	No. 303 cn or 300 cn	13
Cranberry Sauce, whole	1/4 cup	No. 10 cn	2
Figs, Kadota	3 to 4 figs	No. 303 cn	25
Fruit Cocktail	1/2 cup	No. 2-1/2 cn	16
		No. 10 cn	4
Fruit Mix, chunks	1/2 cup	No. 303 cn	25
		No. 10 cn	4
Grapefruit	1/2 cup	No. 303 cn	25
		No. 3 cyl cn	8

TYPE OF FRUIT	PORTION SIZE (Approximate)	CAN SIZE	NO. OF CANS FOR 100 PORTIONS
Peaches, halves	2 halves	No. 2-1/2 cn	16
		No. 10 cn	4
Peaches, quarters or slices	1/2 cup	No. 2-1/2 cn	16
		No. 10 cn	4
Pears, halves	2 halves	No. 2-1/2 cn	16
		No. 10 cn	4
Pears, quarters or slices	1/2 cup	No. 2-1/2 cn	16
		No. 10 cn	4
Pineapple, chunks or tidbits	1/2 cup	No. 2 cn	20
		No. 10 cn	4
Pineapple slices	1 large or 2 small slices	No. 2 cn	20
		No. 10 cn	4
Plums, whole	2 to 3 plums	No. 2-1/2 cn	16
		No. 10 cn	4
Prunes, whole, unpitted	3 prunes	No. 10 cn	1-1/2

**NONFAT DRY MILK
RECONSTITUTION CHART FOR COOKING**

Nonfat Dry Milk (Conventional)	+	Water	=	Fluid Skim Milk
1-2/3 tbsp		1/2 cup		1/2 cup
3 tbsp		1 cup		1 cup
1-2/3 oz (6 tbsp)		1-7/8 cups		2 cups
3-1/4 oz (3/4 cup)		3-3/4 cups		1 qt
5 oz (1-1/8 cups)		5-3/4 cups		1-1/2 qt
6-1/2 oz (1-1/2 cups)		7-1/2 cups		2 qt
8 oz (1-7/8 cups)		9-1/2 cups		2-1/2 qt
10 oz (2-1/4 cups)		11-1/2 cups		3 qt
11-1/4 oz (2-2/3 cups)		3-1/3 qt		3-1/2 qt
13 oz (3 cups)		3-3/4 qt		1 gal
1 lb 10 oz (1-1/2 qt)		1-7/8 gal		2 gal
2 lb 7 oz (2-1/4 qt)		2-7/8 gal		3 gal
4 lb 2 oz (3-3/4 qt)		4-3/4 gal		5 gal
5 lb 2 oz (4-3/4 qt)		6 gal		6-1/4 gal

- NOTE:
1. Recipes in this file use conventional nonfat dry milk.
 2. Instant nonfat dry milk may be substituted on a pound for pound basis for the nonfat dry milk specified in any recipe. It should be weighed because the measures for instant nonfat dry milk are different from measures for nonfat dry milk (conventional). Nonfat dry milk, instant settles. If instant milk must be measured, follow directions on the container.
 3. For best results, nonfat dry milk should be weighed instead of measured. Measures vary from one manufacturer to another. However, as a general rule, 1 ounce of nonfat dry milk will measure $3\frac{2}{3}$ tablespoons, and $4\frac{1}{2}$ ounces of nonfat dry milk will measure 1 cup.
 4. Dry milk must be reconstituted in clean containers using clean utensils and must be treated like fresh milk after it is reconstituted. It must be refrigerated and protected from contamination.
 5. Dry milk reconstitutes more easily in warm water. It should be stirred into the water with a circular motion using a whip or slotted spoon. It may also be reconstituted in a mixer if a large quantity is being prepared. However, it should be mixed at low speed to prevent excessive foaming.
 6. If nonfat dry milk is to be used for a beverage, it should be weighed using 1 lb dry milk and $3\frac{3}{4}$ qt water per gallon. Chill thoroughly before serving. For 100 portions (8 oz), use 6 lb 4 oz nonfat dry milk and $23\frac{1}{2}$ qt water.

GUIDELINES FOR USE OF DEHYDRATED ONIONS, GREEN PEPPERS, AND PARSLEY**ONIONS**

Dehydrated, chopped and dehydrated compressed, chopped onions may be used in any recipe which specifies “onions, fresh, chopped or sliced.”

REHYDRATION GUIDE:	Dehydrated Onions +	Water = (70-90° F.)	Rehydrated Onions OR	Fresh Onion Equivalent*
Dehydrated chopped onions	2 oz (9-2/3 tbsp)	1-1/2 cups	8 oz (1-1/4 cups)	1 lb (3 cups) (1 lb 1-3/4 oz A.P.)
	3-1/3 oz (1 cup)	2-1/2 cups	13 oz (2 cups)	1 lb 10 oz (4-3/4 cups) (1 lb 13 oz A.P.)
	1 lb (4-7/8 cups)	3 qt	4 lb (2-1/2 qt)	8 lb (1-1/2 gal) (8 lb 14 oz A.P.)
	2 lb 8 oz (3 qt-1 No. 10 cn)	7-1/2 qt	10 lb (6-1/4 qt)	20 lb (3-3/4 gal) (22 lb 3 oz A.P.)
Dehydrated, compressed chopped onions	1-3/4 oz	1-1/2 cups	8 oz (1-1/8 cups)	1 lb (3 cups) (1 lb 1-3/4 oz A.P.)
	2-1/3 oz	2 cups	10-1/2 oz (1-3/8 cups)	1 lb 5 oz (1 qt) (1 lb 7 oz A.P.)
	1 lb	3 qt	4 lb 8 oz (2-1/2 qt)	9 lb (6-3/4 qt) (10 lb A.P.)
	1 lb 3 oz (1 No. 2-1/2 cn)	3-1/2 qt	5 lb 5-1/2 oz (3 qt)	10 lb 11 oz (2 gal) (11 lb 14 oz A.P.)

* Volume is for chopped onions.

FOR RECIPES WITH SMALL AMOUNTS OF LIQUID: Cover dehydrated onions with 70° F. to 90° F. water. Stir dehydrated compressed onions occasionally to break apart. Let dehydrated onions stand 30 minutes; compressed dehydrated onions 1 hour or more. Drain. Note: Weight of rehydrated onions will be less than weight of dry onions but appearance and flavor will be similar.

FOR SOUPS, STEWS, SAUCES OR RECIPES WITH A LOT OF LIQUID: Add dehydrated chopped or dehydrated compressed onions directly.

GREEN PEPPERS

Dehydrated green peppers may be used in any recipe which specifies “peppers, sweet, diced or chopped.”

REHYDRATION GUIDE:	Dehydrated Peppers +	Cold Water = (35-55° F.)	Rehydrated Peppers OR	Sweet Peppers Equivalent*
	1 oz (2/3 cup)	2 cups	6-1/2 oz (1-1/3 cups)	6-1/2 oz (1-1/4 cups) (8 oz A.P.)
	1 lb (2-1/2 qt)	2 gal	6 lb 8 oz (5-1/2 qt)	6 lb 8 oz (1-1/4 gal)(7 lb 15 oz A.P.)

* Volume is for chopped peppers

FOR SALADS OR UNCOOKED DISHES: Cover with cold water. Refrigerate 1 hour or overnight. Drain.

FOR RECIPES WITH SMALL AMOUNTS OF LIQUID: Cover with cold water. Let stand 30 minutes. Drain.

FOR SOUPS, STEWS, SAUCES OR RECIPES WITH A LOT OF LIQUID: Add dehydrated peppers directly.

PARSLEY

Dehydrated parsley may be used in any recipe which specifies “chopped, fresh parsley.”

REHYDRATION GUIDE:	Dehydrated Parsley +	Cold Water = (30-35° F.)	Rehydrated Parsley OR	Fresh Parsley Equivalent*
	1 oz (1-2/3 cup)	3-1/3 cups	8 oz (1-3/4 cups)	9 oz (4-1/4 cups) (9-1/2 oz A.P.)

* Volume is for chopped parsley

FOR SALADS OR UNCOOKED DISHES: Cover with ice cold water. Let stand 3 to 5 minutes. Drain.

FOR SOUPS, STEWS, SAUCES OR RECIPES WITH A LOT OF LIQUID: Add dehydrated parsley directly.

GUIDELINES FOR FRUIT BARS

Fruit bars provide important sources of nutrients such as Vitamins A and C, and fiber. All fruits are low in fat and calories and none contain cholesterol. They may be set up for service at breakfast, lunch, dinner and brunch meals. A variety of fresh, canned and frozen fruits may be used.

Preparation: Wash all fresh fruits except bananas. Drain well. Refrigerate until ready to serve. Keep bananas in a cool, dry place until ready to serve.

ITEM	PORTION SIZE	100 PORTIONS	
		A.P. WEIGHT OR CONTAINER	E.P.
Apples, canned, drained	1/4 cup (1-1/2 oz)	13 lb 8 oz (2-No. 10 cn)	12 lb
Apples, fresh, eating	1 apple (6 oz)	37 lb 8 oz	
Applesauce, canned	1/4 cup (2 oz)	14 lb 10 oz (2-1/6-No. 10 cn)	
Apricots, canned, halves, drained	3 halves (1-1/2 oz)	20 lb 4 oz (3-No. 10 cn)	11 lb 10 oz
Apricots, fresh	2 apricots (2-1/2 oz)	16 lb 11 oz	
Bananas, fresh, peeled, sliced	1/2 cup (2-1/2 oz)	28 lb	18 lb 3 oz
Bananas, fresh	1 banana (6 oz)	40 lb	

ITEM	PORTION SIZE	100 PORTIONS	
		A.P. WEIGHT OR CONTAINER	E.P.
Blueberries, canned drained	1/2 cup (4-1/2 oz)	52 lb 10 oz (8-1/4-No. 10 cn)	28 lb 6 oz
Cantaloupe, fresh, quartered, unpared	1/4 small cantaloupe (3 oz)	21 lb 14 oz	
Cantaloupe, fresh, pared, 1 inch pieces	1/2 cup (2-1/2 oz)	35 lb	17 lb 14 oz
Casaba melons, fresh, unpared, sliced	1/10 melon (4 oz)	31 lb 4 oz	
Casaba melons, fresh, pared 1 inch pieces	1/2 cup (2-1/2 oz)	29 lb 11 oz	17 lb 12 oz
Cherries, canned, sweet, drained	1/2 cup (3-1/2 oz)	38 lb 13 oz (5-3/4 No.-10 cn)	23 lb 14 oz
Cherries, fresh, sweet	1/2 cup (2-1/2 oz)	17 lb 10 oz	

GUIDELINES FOR FRUIT BARS - CONTINUED

ITEM	PORTION SIZE	100 PORTIONS	
		A.P. WEIGHT OR CONTAINER	E.P.
Coconut, prepared, sweetened, flakes	1 tbsp	1 lb 5 oz	
Fruit cocktail, canned, drained	1/2 cup (4 oz)	42 lb 3 oz (6-1/4-No. 10 cn)	27 lb 12 oz
Fruits, chunks, mixed, canned, drained	1/2 cup (3 oz)	39 lb 2 oz (5-3/4-No. 10 cn)	26 lb 3 oz
Grapefruit, canned, drained	1/2 cup (4 oz)	46 lb 14 oz (15-No. 3 cyl cn or 47-No. 303 cn)	25 lb 10 oz
Grapefruit, fresh, halved	1/2 grapefruit (8-3/4 oz)	54 lb 11 oz	
Grapefruit, fresh, segments	1/2 cup (4 oz)	48 lb	25 lb
Grapes, fresh	1/2 cup (2-1/2 oz)	16 lb 11 oz	
Honeyball melons, fresh, unpared, sliced	1/10 melon (3 oz)	40 lb 15 oz	
Honeyball melons, fresh, pared, 1 inch pieces	1/2 cup (2-1/2 oz)	37 lb 14 oz	17 lb 7 oz
Honeydew melons, fresh, unpared, sliced	1/10 melon (3 oz)	40 lb 15 oz	

ITEM	PORTION SIZE	100 PORTIONS	
		A.P. WEIGHT OR CONTAINER	E.P.
Honeydew melons, fresh, pared, 1 inch pieces	1/2 cup (2-1/2 oz)	37 lb 14 oz	17 lb 7 oz
Kiwifruit, fresh, pared, sliced	2 slices (1/2 oz)	5 lb 14 oz	5 lb 1 oz
Mangoes, fresh, pared, diced	1/2 cup (3 oz)	27 lb 12 oz	19 lb 3 oz
Mangoes, fresh, pared, sliced	4 slices (2 oz)	18 lb 9 oz	12 lb 12 oz
Nectarines, fresh	1 nectarine (4-1/2 oz)	28 lb 2 oz	
Oranges, fresh, peeled, sliced	3 slices (2 oz)	20 lb 9 oz	14 lb 9 oz
Oranges, fresh	1 orange (6 oz)	37 lb 8 oz	
Oranges, Mandarin, canned, drained	1/4 cup (1-1/2 oz)	20 lb 4 oz (3 No. 10 cn)	10 lb 15 oz
Papaya, fresh, pared, seeded, cubed	1/2 cup (2-1/2 oz)	24 lb	15 lb 11 oz

GUIDELINES FOR FRUIT BARS - CONTINUED

ITEM	PORTION SIZE	100 PORTIONS	
		A.P. WEIGHT OR CONTAINER	E.P.
Papaya, fresh, pared, sliced	3 slices (2 oz)	22 lb 8 oz	14 lb 11 oz
Peaches, canned, halves, drained	2 halves (4 oz)	45 lb 9 oz (6-3/4-No. 10 cn)	27 lb 7 oz
Peaches, canned, quarters/slices, drained	1/2 cup (4 oz)	43 lb 14 oz (6-1/2-No. 10 cn)	27 lb
Peaches, fresh	1 peach (4 oz)	25 lb	
Peaches, frozen	1/2 cup (4 oz)	27 lb 13 oz (4-1/4-No. 10 cn)	
Pears, canned, halves, drained	2 halves (3-1/2 oz)	41 lb 7 oz (6-1/4-No. 10 cn)	25 lb
Pears, canned, quarters/slices, drained	1/2 cup (3-1/2 oz)	36 lb 7 oz (5-1/2-No. 10 cn)	22 lb 8 oz
Pears, fresh	1 pear (5-1/2 oz)	36 lb	
Persian melons, fresh, unpared, sliced	1/10 melon (3 oz)	45 lb 13 oz	
Persian melons, fresh, pared, diced	1/2 cup (2-1/2 oz)	41 lb 4 oz	17 lb 5 oz
Pineapple, canned, chunks/tidbits, drained	1/2 cup (3-1/2 oz)	37 lb 2 oz (5-1/2-No. 10 cn)	22 lb 10 oz

Pineapple, canned, slices, drained	2 slices (2 oz)	25 lb 5 oz (3-3/4 No. 10 cn)	14 lb 7 oz
Pineapple, fresh, pared, cored, 1 inch pieces	1/2 cup (2-1/2 oz)	33 lb 4 oz	17 lb 5 oz
Plums, canned, drained	3 plums (2-1/2 oz)	32 lb 1 oz (4-3/4-No. 10 cn)	17 lb 13 oz
Plums, fresh	1 plum (2-1/2 oz)	15 lb 10 oz	
Prunes, whole, canned, drained	3 prunes (1-1/2 oz)	10 lb 1 oz (1-2/5-No. 10 cn)	9 lb 10 oz
Raisins	1 tbsp	2 lb 4 oz (1/2-No. 10 cn)	
Raspberries, frozen	1/2 cup (4 oz)	27 lb 13 oz (4-1/4-No. 10 cn)	
Strawberries, fresh, sliced	1/2 cup (2-1/2 oz)	18 lb 4 oz	17 lb 3 oz
Strawberries, fresh, whole	1/2 cup (2-1/2 oz)	16 lb 9 oz	15 lb 10 oz
Strawberries, frozen, sliced	1/2 cup (4 oz)	27 lb 13 oz (4-1/4-No. 10 cn)	
Tangelos, fresh	1 tangelo (6 oz)	37 lb 8 oz	
Tangerines, fresh	1 tangerine (3-1/2 oz)	22 lb 15 oz	
Watermelons, fresh, unpared, wedge (1 inch by 4 inches)	1 wedge (4 oz)	51 lb	
Watermelons, fresh, pared, 1 inch pieces	1/2 cup (2-1/2 oz)	34 lb	17 lb 11 oz

CONVERSION OF QUANTITIES IN RECIPES

Weight Conversion Chart

The following chart for weights permit easy adjustment of recipes to yield the number of portions actually needed. Since recipes are based on 100 portions, find the amount as specified in the recipe under the column headed 100 portions, and then use the amount shown in the column with the heading for the number of portions to be prepared, i.e., if a recipe for 100 uses 1 pound of flour, find 1 pound under the column headed 100 portions and then look in the column under 125 portion and you will see that you should use 1 pound 4 ounces to prepare 125 portions of the item.

Oz = ounce Lb = pound

10 Portions	25 Portions	50 Portions	75 Portions	100 Portions	125 Portions	150 Portions	175 Portions	250 Portions	275 Portions	300 Portions
1/10 oz	1/4 oz	1/2 oz	3/4 oz	1 oz	1 1/4 oz	1 1/2 oz	1 3/4 oz	2 1/2 oz	2 3/4 oz	3 oz
1/5 oz	1/2 oz	1 oz	1 1/2 oz	2 oz	2 1/2 oz	3 oz	3 1/2 oz	5 oz	5 1/2 oz	6 oz
3/10 oz	3/4 oz	1 1/2 oz	2 1/4 oz	3 oz	3 3/4 oz	4 1/2 oz	5 1/4 oz	7 1/2 oz	8 1/4 oz	9 oz
2/5 oz	1 oz	2 oz	3 oz	4 oz	5 oz	6 oz	7 oz	10 oz	11 oz	12 oz
1/2 oz	1 1/4 oz	2 1/2 oz	3 3/4 oz	5 oz	6 1/4 oz	7 1/2 oz	8 3/4 oz	12 1/2 oz	13 3/4 oz	15 oz
3/5 oz	1 1/2 oz	3 oz	4 1/2 oz	6 oz	7-1/2 oz	9 oz	10 1/2 oz	15 oz	1 lb	1 lb 2 oz
7/10 oz	1 3/4 oz	3 1/2 oz	5 1/4 oz	7 oz	8 3/4 oz	10 1/2 oz	12 1/4 oz	1 lb 2 oz	1 lb 4 oz	1 lb 5 oz

10 Portions	25 Portions	50 Portions	75 Portions	100 Portions	125 Portions	150 Portions	175 Portions	250 Portions	275 Portions	300 Portions
4/5 oz	2 oz	4 oz	6 oz	8 oz	10 oz	12 oz	14 oz	1 lb 4 oz	1 lb 6 oz	1 lb 8 oz
7/8 oz	2 1/4 oz	4 1/2 oz	6 3/4 oz	9 oz	11 1/4 oz	13 1/2 oz	15 3/4 oz	1 lb 6 oz	1 lb 8 oz	1 lb 11 oz
1 oz	2 1/2 oz	5 oz	7 1/2 oz	10 oz	12 1/2 oz	15 oz	1 lb 2 oz	1 lb 10 oz	1 lb 12 oz	1 lb 14 oz
1 1/8 oz	2 3/4 oz	5 1/2 oz	8 1/4 oz	11 oz	13 3/4 oz	1 lb	1 lb 4 oz	1 lb 12 oz	1 lb 14 oz	2 lb 2 oz
1 1/4 oz	3 oz	6 oz	9 oz	12 oz	15 oz	1 lb 2 oz	1 lb 5 oz	1 lb 14 oz	2 lb 2 oz	2 lb 4 oz
1 1/3 oz	3 1/4 oz	6 1/2 oz	9 3/4 oz	13 oz	1 lb	1 lb 4 oz	1 lb 6 oz	2 lb	2 lb 4 oz	2 lb 8 oz
1 3/8 oz	3 1/2 oz	7 oz	10 1/2 oz	14 oz	1 lb 2 oz	1 lb 5 oz	1 lb 8 oz	2 lb 4 oz	2 lb 6 oz	2 lb 10 oz
1 1/2 oz	3 3/4 oz	7 1/2 oz	11 oz	15 oz	1 lb 2 oz	1 lb 6 oz	1 lb 10 oz	2 lb 5 oz	2 lb 10 oz	2 lb 14 oz
1 5/8 oz	4 oz	8 oz	12 oz	1 lb	1 lb 4 oz	1 lb 8 oz	1 lb 12 oz	2 lb 8 oz	2 lb 12 oz	3 lb
2 oz	5 oz	10 oz	15 oz	1 lb 4 oz	1 lb 10 oz	1 lb 14 oz	2 lb 4 oz	3 lb 2 oz	3 lb 8 oz	3 lb 12 oz
2 2/5 oz	6 oz	12 oz	1 lb 2 oz	1 lb 8 oz	1 lb 14 oz	2 lb 4 oz	2 lb 10 oz	3 lb 12 oz	4 lb 2 oz	4 lb 8 oz
2 4/5 oz	7 oz	14 oz	1 lb 5 oz	1 lb 12 oz	2 lb 4 oz	2 lb 10 oz	3 lb 2 oz	4 lb 6 oz	4 lb 14 oz	5 lb 4 oz
3 1/5 oz	8 oz	1 lb	1 lb 8 oz	2 lb	2 lb 8 oz	3 lb	3 lb 8 oz	5 lb	5 lb 8 oz	6 lb
3 3/5 oz	9 oz	1 lb 2 oz	1 lb 11 oz	2 lb 4 oz	2 lb 14 oz	3 lb 6 oz	4 lb	5 lb 10 oz	6 lb 4 oz	6 lb 12 oz
4 oz	10 oz	1 lb 4 oz	1 lb 14 oz	2 lb 8 oz	3 lb 2 oz	3 lb 12 oz	4 lb 6 oz	6 lb 4 oz	6 lb 14 oz	7 lb 8 oz

CONVERSION OF QUANTITIES IN RECIPES
Weight Conversion Chart

10 Portions	25 Portions	50 Portions	75 Portions	100 Portions	125 Portions	150 Portions	175 Portions	250 Portions	275 Portions	300 Portions
4 2/5 oz	11 oz	1 lb 6 oz	2 lb 2 oz	2 lb 12 oz	3 lb 8 oz	4 lb 2 oz	4 lb 14 oz	6 lb 14 oz	7 lb 10 oz	8 lb 4 oz
4 4/5 oz	12 oz	1 lb 8 oz	2 lb 4 oz	3 lb	3 lb 12 oz	4 lb 8 oz	5 lb 4 oz	7 lb 8 oz	8 lb 4 oz	9 lb
5 1/5 oz	13 oz	1 lb 10 oz	2 lb 8 oz	3 lb 4 oz	4 lb 2 oz	4 lb 14 oz	5 lb 11 oz	8 lb 2 oz	9 lb	9 lb 12 oz
5 3/5 oz	14 oz	1 lb 12 oz	2 lb 10 oz	3 lb 8 oz	4 lb 6 oz	5 lb 4 oz	6 lb 2 oz	8 lb 12 oz	9 lb 10 oz	10 lb 8 oz
6 oz	15 oz	1 lb 14 oz	2 lb 14 oz	3 lb 12 oz	4 lb 11 oz	5 lb 10 oz	6 lb 10 oz	9 lb 6 oz	10 lb 5 oz	11 lb 4 oz
6 2/5 oz	1 lb	2 lb	3 lb	4 lb	5 lb	6 lb	7 lb	10 lb	11 lb	12
8 oz	1 lb 4 oz	2 lb 8 oz	3 lb 12 oz	5 lb	6 lb 4 oz	7 lb 8 oz	8 lb 12 oz	12 lb 8 oz	13 lb 12 oz	15 lb
9 3/5 oz	1 lb 8 oz	3 lb	4 lb 8 oz	6 lb	7 lb 8 oz	9 lb	10 lb 8 oz	15 lb	16 lb 8 oz	18 lb
11 1/5 oz	1 lb 12 oz	3 lb 8 oz	5 lb 4 oz	7 lb	8 lb 12 oz	10 lb 8 oz	12 lb 4 oz	17 lb 8 oz	19 lb 4 oz	21 lb
12 4/5 oz	2 lb	4 lb	6 lb	8 lb	10 lb	12 lb	14 lb	20 lb	22 lb	24 lb
1 lb	2 lb 8 oz	5 lb	7 lb 8 oz	10 lb	12 lb 8 oz	15 lb	17 lb 8 oz	25 lb	27 lb 8 oz	30 lb
1 lb 4 oz	3 lb	6 lb	9 lb	12 lb	15 lb	18 lb	21 lb	30 lb	33 lb	36 lb
1 lb 8 oz	3 lb 12 oz	7 lb 8 oz	11 lb 4 oz	15 lb	18 lb 12 oz	22 lb 8 oz	26 lb 4 oz	37 lb 8 oz	41 lb 4 oz	45 lb
2 lb	5 lb	10 lb	15 lb	20 lb	25 lb	30 lb	35 lb	50 lb	55 lb	60 lb
3 lb	7 lb 8 oz	15 lb	22 lb 8 oz	30 lb	37 lb 8 oz	45 lb	52 lb 8 oz	75 lb	82 lb 8 oz	90 lb

CONVERSION OF QUANTITIES IN RECIPES

Measure Conversion Chart

The following chart for measures permits easy adjustments of recipes to yield the number of portions actually needed. Since recipes are based on 100 portions, find the amount as specified in the recipe under column headed 100 portions and then use the amount shown in the column with the heading for the number of portions to be prepared, i.e., if a recipe for 100 uses 3 cups of flour, find 3 cups under the column headed 100 portions and then look in the column under 125 portions and you will see that you should use 3 $\frac{3}{4}$ cups to prepare 125 portions of the item.

tsp – teaspoon

tbsp – tablespoon

qt – quart

gal - gallon

10 Portions	25 Portions	50 Portions	75 Portions	100 Portions	125 Portions	150 Portions	175 Portions	250 Portions	275 Portions	300 Portions
.....	$\frac{1}{4}$ tsp	$\frac{1}{2}$ tsp	$\frac{3}{4}$ tsp	1 tsp	1 $\frac{1}{4}$ tsp	1 $\frac{1}{2}$ tsp	1 $\frac{3}{4}$ tsp	2 $\frac{1}{2}$ tsp	2 $\frac{3}{4}$ tsp	1 tbsp
.....	$\frac{1}{2}$ tsp	1 tsp	1 $\frac{1}{2}$ tsp	2 tsp	2 $\frac{1}{2}$ tsp	1 tbsp	3 $\frac{1}{2}$ tsp	1 $\frac{2}{3}$ tbsp	1 $\frac{7}{8}$ tbsp	2 tbsp
$\frac{1}{4}$ tsp	$\frac{3}{4}$ tsp	1 $\frac{1}{2}$ tsp	2 tsp	1 tbsp	3 $\frac{3}{4}$ tsp	1 $\frac{1}{3}$ tbsp	1 $\frac{2}{3}$ tbsp	2 $\frac{1}{3}$ tbsp	2 $\frac{2}{3}$ tbsp	3 tbsp
$\frac{1}{2}$ tsp	1 $\frac{1}{2}$ tsp	1 tbsp	1 $\frac{2}{3}$ tbsp	2 tbsp	2 $\frac{2}{3}$ tbsp	3 tbsp	3 $\frac{2}{3}$ tbsp	5 tbsp	5 $\frac{2}{3}$ tbsp	6 tbsp
$\frac{3}{4}$ tsp	2 $\frac{1}{4}$ tsp	1 $\frac{2}{3}$ tbsp	2 $\frac{1}{3}$ tbsp	3 tbsp	$\frac{1}{4}$ cup	4 $\frac{2}{3}$ tbsp	5 tbsp	7 $\frac{2}{3}$ tbsp	$\frac{1}{2}$ cup	9 tbsp
1 tsp	1 tbsp	2 tbsp	3 tbsp	$\frac{1}{4}$ cup	5 tbsp	6 tbsp	7 tbsp	10 tbsp	11 tbsp	$\frac{3}{4}$ cup
1 $\frac{1}{2}$ tsp	3 $\frac{3}{4}$ tsp	2 $\frac{2}{3}$ tbsp	4 tbsp	5 tbsp	6 tbsp	7 $\frac{2}{3}$ tbsp	9 tbsp	12 $\frac{2}{3}$ tbsp	14 tbsp	1 cup
1 $\frac{3}{4}$ tsp	4 $\frac{1}{2}$ tsp	3 tbsp	4 $\frac{2}{3}$ tbsp	6 tbsp	7 $\frac{2}{3}$ tbsp	$\frac{1}{2}$ cup	10 $\frac{2}{3}$ tbsp	15 tbsp	1 cup	1 cup + 2 tbsp
2 tsp	5 $\frac{1}{4}$ tsp	3 $\frac{2}{3}$ tbsp	5 tbsp	7 tbsp	9 tbsp	10 $\frac{2}{3}$ tbsp	$\frac{3}{4}$ cup	1 cup + 1 $\frac{2}{3}$ tbsp	1 cup + 3 tbsp	1 $\frac{1}{3}$ cups

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10 Portions	25 Portions	50 Portions	75 Portions	100 Portions	125 Portions	150 Portions	175 Portions	250 Portions	275 Portions	300 Portions
2 ¼ tsp	2 tbsp	4 tbsp	6 tbsp	½ cup	10 tbsp	¾ cup	14 tbsp	1 ¼ cups	1 cup + 6 tbsp	1 ½ cups
2 ½ tsp	2 tbsp	4 2/3 tbsp	7 tbsp	9 tbsp	11 tbsp	13 2/3 tbsp	1 cup	1 cup + 6 tbsp	1 ½ cups	1 ¾ cups
1 tbsp	2 2/3 tbsp	5 tbsp	7 2/3 tbsp	10 tbsp	¾ cup	1 cup	1 cup + 2 tbsp	1 ½ cups	1 ¾ cups	2 cups
3 ¼ tsp	3 tbsp	5 2/3 tbsp	8 tbsp	11 tbsp	14 tbsp	1 cup	1 cup + 3 tbsp	1 ¾ cups	2 cups	2 1/8 cups
3 ½ tsp	3 tbsp	6 tbsp	9 tbsp	¾ cup	1 cup	1 cup + 2 tbsp	1 ¼ cups	2 cups	2 cups + 2 tbsp	2 ¼ cups
3 ¾ tsp	3 tbsp	6 2/3 tbsp	10 tbsp	13 tbsp	1 cup	1 ¼ cups	1 ½ cups	2 cups	2 ¼ cups	2 ½ cups
1 1/3 tbsp	3 2/3 tbsp	7 tbsp	10 2/3 tbsp	14 tbsp	1 cup + 2 tbsp	1 1/3 cups	1 ½ cups	2 cups + 3 tbsp	2 1/3 cups	2 ½ cups
4 ½ tsp	3 ¾ tbsp	7 2/3 tbsp	11 tbsp	15 tbsp	1 ¼ cups	1 ½ cups	1 ¾ cups	2 1/3 cups	2 ¾ cups	2 7/8 cups
4 ¾ tsp	¼ cup	½ cup	¾ cup	1 cup	1 ¼ cups	1 ½ cups	1 ¾ cups	2 ½ cups	2 ¾ cups	3 cups
2 tbsp	5 tbsp	10 tbsp	1 cup	1 ¼ cups	1 ½ cups	2 cups	2 ¼ cups	3 cups	3 ½ cups	3 ¾ cups
7 tsp	6 tbsp	¾ cup	1 cup + 2 tbsp	1 ½ cups	2 cups	2 ¼ cups	2 ¾ cups	3 ¾ cups	1 qt	4 ½ cups

CONVERSION OF QUANTITIES IN RECIPES**Measure Conversion Chart**

10 Portions	25 Portions	50 Portions	75 Portions	100 Portions	125 Portions	150 Portions	175 Portions	250 Portions	275 Portions	300 Portions
8 $\frac{1}{4}$ tsp	7 tbsp	14 tbsp	1 $\frac{1}{3}$ cups	1 $\frac{3}{4}$ cups	2 $\frac{1}{4}$ cups	2 $\frac{3}{4}$ cups	3 cups	4 $\frac{1}{2}$ cups	4 $\frac{3}{4}$ cups	5 $\frac{1}{4}$ cups
9 $\frac{1}{2}$ tsp	$\frac{1}{2}$ cup	1 cup	1 $\frac{1}{2}$ cups	2 cups	2 $\frac{1}{2}$ cups	3 cups	3 $\frac{1}{2}$ cups	5 cups	5 $\frac{1}{2}$ cups	1 $\frac{1}{2}$ qt
10 $\frac{3}{4}$ tsp	$\frac{1}{2}$ cup + 1 tbsp	1 cup + 2 tbsp	1 $\frac{3}{4}$ cups	2 $\frac{1}{4}$ cups	2 $\frac{3}{4}$ cups	3 $\frac{1}{2}$ cups	1 qt	5 $\frac{3}{4}$ cups	1 $\frac{1}{2}$ qt	6 $\frac{3}{4}$ cups
$\frac{1}{4}$ cup	10 tbsp	1 $\frac{1}{4}$ cups	2 cups	2 $\frac{1}{2}$ cups	3 cups + 2 tbsp	3 $\frac{3}{4}$ cups	4 $\frac{1}{2}$ cups	6 $\frac{1}{4}$ cups	1 $\frac{3}{4}$ qt	7 $\frac{1}{2}$ cups
4 $\frac{3}{4}$ tbsp	$\frac{3}{4}$ cup	1 $\frac{1}{2}$ cups	2 $\frac{1}{4}$ cups	3 cups	3 $\frac{3}{4}$ cups	4 $\frac{1}{2}$ cups	5 $\frac{1}{4}$ cups	7 $\frac{1}{2}$ cups	8 $\frac{1}{4}$ cups	2 $\frac{1}{4}$ qt
5 $\frac{2}{3}$ tbsp	14 tbsp	1 $\frac{3}{4}$ cups	2 $\frac{1}{2}$ cups	3 $\frac{1}{2}$ cups	4 $\frac{1}{2}$ cups	1 $\frac{1}{4}$ qt	1 $\frac{1}{2}$ qt	2 $\frac{1}{4}$ qt	9 $\frac{3}{4}$ cups	10 $\frac{1}{2}$ cups
6 $\frac{1}{4}$ tbsp	1 cup	2 cups	3 cups	1 qt	1 $\frac{1}{4}$ qt	1 $\frac{1}{2}$ qt	1 $\frac{3}{4}$ qt	2 $\frac{1}{2}$ qt	2 $\frac{3}{4}$ qt	3 qt
$\frac{1}{2}$ cup	1 $\frac{1}{4}$ cups	2 $\frac{1}{2}$ cups	3 $\frac{3}{4}$ cups	1 $\frac{1}{4}$ qt	6 $\frac{1}{4}$ cups	7 $\frac{1}{2}$ cups	8 $\frac{3}{4}$ cups	12 $\frac{1}{2}$ cups	3 $\frac{1}{2}$ qt	3 $\frac{3}{4}$ qt
9 $\frac{3}{4}$ tbsp	1 $\frac{1}{2}$ cups	3 cups	4 $\frac{1}{2}$ cups	1 $\frac{1}{2}$ qt	7 $\frac{1}{2}$ cups	2 $\frac{1}{4}$ qt	10 $\frac{1}{2}$ cups	3 $\frac{3}{4}$ qt	1 gal	4 $\frac{1}{2}$ qt
11 tbsp	1 $\frac{3}{4}$ cups	3 $\frac{1}{2}$ cups	5 $\frac{1}{4}$ cups	7 cups	8 $\frac{3}{4}$ cups	10 $\frac{1}{2}$ cups	3 qt	1 gal + 1 $\frac{1}{2}$ cups	1 gal + 3 $\frac{1}{4}$ cups	5 $\frac{1}{4}$ qt
12 $\frac{3}{4}$ tbsp	2 cups	1 qt	1 $\frac{1}{2}$ qt	2 qt	2 $\frac{1}{4}$ qt	3 qt	3 $\frac{1}{2}$ qt	1 $\frac{1}{4}$ gal	5 $\frac{1}{2}$ qt	1 $\frac{1}{2}$ gal
1 $\frac{1}{4}$ cups	3 cups	1 $\frac{1}{2}$ qt	2 $\frac{1}{4}$ qt	3 qt	3 $\frac{3}{4}$ qt	4 $\frac{1}{2}$ qt	5 $\frac{1}{4}$ qt	7 $\frac{1}{2}$ qt	2 gal	2 $\frac{1}{4}$ gal
1 $\frac{1}{2}$ cups	1 qt	2 qt	3 qt	1 gal	1 $\frac{1}{4}$ gal	1 $\frac{1}{2}$ gal	1 $\frac{3}{4}$ gal	2 $\frac{1}{2}$ gal	2 $\frac{3}{4}$ gal	3 gal
3 cups	2 qt	1 gal	1 $\frac{1}{2}$ gal	2 gal	2 $\frac{1}{4}$ gal	3 gal	3 $\frac{1}{2}$ gal	5 gal	5 $\frac{1}{2}$ gal	6 gal
4 $\frac{1}{2}$ cups	3 qt	1 $\frac{1}{2}$ gal	2 $\frac{1}{4}$ gal	3 gal	3 $\frac{3}{4}$ gal	4 $\frac{1}{2}$ gal	5 $\frac{1}{4}$ gal	7 $\frac{1}{4}$ gal	8 gal	9 gal
1 $\frac{1}{2}$ qt	1 gal	2 gal	3 gal	4 gal	5 gal	6 gal	7 gal	10 gal	11 gal	12 gal
7 $\frac{1}{2}$ cups	1 $\frac{1}{4}$ gal	2 $\frac{1}{2}$ gal	3 $\frac{3}{4}$ gal	5 gal	6 $\frac{1}{4}$ gal	7 $\frac{1}{2}$ gal	8 $\frac{3}{4}$ gal	12 $\frac{1}{2}$ gal	13 $\frac{3}{4}$ gal	15 gal

GUIDELINES FOR HANDLING FROZEN FOODS

Proper storage and thawing procedures for frozen foods are essential for keeping foods safe and palatable. Some foods, such as vegetables, do not need to be thawed before cooking. Many recipes require meat to be only partially thawed or tempered, to facilitate separation before cooking; this prevents excessive moisture loss. Unless otherwise indicated, preparation methods and cooking times are for thawed meat, fish and poultry.

Frozen foods should be stored at or below 0° F. and thawed at 36° F. DO NOT refreeze foods that have been thawed; cook and serve as soon as possible to promote maximum quality and safety.

FROZEN FRUITS: Thaw unopened under refrigeration (36° F. to 38° F.) or covered with cold water.

FROZEN FRUIT JUICES AND CONCENTRATES: These do not require thawing.

FROZEN VEGETABLES: These do not require thawing before cooking. For faster cooking, Brussels sprouts, broccoli, asparagus, cauliflower, and leafy greens may be partially thawed under refrigeration.

FROZEN MEATS: Improper thawing of meat encourages bacterial growth and also results in unnecessary loss of meat juices, poor quality and loss of yield and nutrients. To thaw meat, remove from shipping container, but leave inside wrappings (usually polyethylene bags) on meat. Thaw under refrigeration (36° F. to 38° F.) until almost completely thawed. Spread out large cuts, such as roasts, to allow air to circulate. The length of the thawing period will vary accordingly to the size of meat cut, the temperature and degree of air circulation in the chill space, and the quantity of meat being thawed in a given space. Boneless meats generally require 26 to 48 hours to thaw at 36° F. to 38° F.

Meat may be cooked frozen or tempered except for a few cuts which require complete thawing (i.e., bulk ground beef, bulk beef patty mix, braising Swiss steak, bulk pork sausage and diced beef for stewing.)

Roasts, when cooked from the frozen state, will require one-third to one-half more cooking time than thawed roasts. The addition of seasonings, if required, must be delayed until the outside is somewhat thawed and the surface is sufficiently moist to retain the seasonings. The insertion of meat thermometers must also be delayed until roasts are partially thawed. Grill steaks, pork chops and liver should be tempered before cooking to ensure a moist, palatable product. (Temper - To remove from freezer and place under refrigeration for a period of time sufficient to facilitate separation and handling of frozen product. Internal temperature of the food should be approximately 26° F. to 28° F.). Pork sausage patties and pork and beef sausage links should be cooked frozen.

FROZEN SEAFOOD: Fish fillets and steaks may be cooked frozen or thawed. Any fish that is to be breaded or batter dipped should be thawed. Clams, crabmeat, oysters, scallops and shrimp should be kept wrapped while thawing. Fish and shellfish should be thawed under refrigeration (36° F. to 38° F.) and require 12 hours to thaw.

Frozen, whole lobster, king crab legs, spiny lobster tail, breaded fish portions or nuggets, batter-dipped fish portions, or breaded oysters and shrimp **SHOULD NOT** be thawed before cooking.

FROZEN POULTRY: Poultry must be thawed under refrigeration (36° F. to 38° F.). Proper thawing of poultry reduces bacterial growth, maintains quality and retains nutrients through less drip loss.

GUIDELINES FOR HANDLING FROZEN FOODS

RAW CHICKEN: Remove whole chickens from shipping containers and thaw in individual wrappers (plastic bags). To thaw parts or quarters, remove intermediate containers from shipping containers; remove overwrapping from intermediate containers and open intermediate containers to expose inner wrapping. Length of thawing period under refrigeration (36° F. to 38° F.) will vary according to size of chicken and refrigeration conditions.

Approximate Thawing Times: Chicken, whole - 37 hours; Chicken, quarters - 52 hours; Chicken, cut-up - 52 hours

PRECOOKED BREADED CHICKEN, NUGGETS OR FILLETS: DO NOT THAW before cooking.

PRECOOKED UNBREADED CHICKEN FILLETS: Temper. DO NOT THAW before cooking.

PREPARED FROZEN CHILIES RELLENOS, BURRITOS, PIZZAS, ENCHILADAS, LASAGNA, TAMALES, MANICOTTI, CANNELLONI: DO NOT THAW before cooking.

TURKEY: Remove turkeys from shipping containers. Thaw in individual wrappers under refrigeration (36° F. to 38° F.)

Approximate Thawing Times: Turkey, whole (16 lbs or less - 2 days; Turkey, whole (over 16 lbs) - 3 to 4 days; Turkey, boneless - 12 to 16 hours; Turkey, ground – thaw; Turkey sausage patties and links - cook frozen

FROZEN EGGS: Thaw under refrigeration (36 F. to 38 F.) or covered with cold water. Thirty pound cans require at least 2 days to thaw, 10 lb cans or cartons require at least 1 day.

FROZEN PIZZA BLEND CHEESE: If pizza blend cheese is received and stored as a frozen product, it should be thawed under refrigeration (36° F. to 38° F.) to ensure retention of its characteristic flavor, texture, and appearance. Thawing at room temperature will encourage bacterial growth (inherent in the product) resulting in an undesirable flavor and swelling of the container.

**GUIDELINES FOR USE OF ANTIBROWNING AGENT
(NON-SULFATING AGENTS)**

The purpose of an antibrowning agent is to prevent browning and maintain color and crispness in fresh potatoes and fruits.

DIRECTIONS FOR USE

1. Dissolve 1-3/4 oz (3 tbsp) antibrowning agent per gallon of cold water in a clean stainless steel, glass or plastic container. DO NOT use galvanized metal containers.
2. Dip fresh white potatoes (peeled, whole, quarters, French fry cut, slices) or fruits (apples, avocados, bananas, peaches, pears) peeled, sliced and free from bruises in the antibrowning solution. Soak for 3 minutes.
3. Drain and refrigerate product until ready to use.

- NOTE:
1. Keep antibrowning agent stored in its original container. Make the solution fresh daily. A plastic measuring spoon should be kept with the antibrowning agent for easy measuring.
 2. Antibrowning agent is not required for lettuce, cauliflower, green peppers, cabbage, celery or pineapple.

GUIDELINES FOR USE OF STEAM COOKERS

Use of steamers in quantity food preparation can save cooking time, labor, help maintain appearance of food, and preserve nutrients normally lost by other cooking methods. Steamers are ideal for batch preparation. Foods may be steamed and served in the same pan, if steam table pans are used for preparation.

Steamers are either 5 lb pressure or 15 lb pressure (high speed) type. When food is steamed at 5 lb pressure, the internal temperature of the steamer is 225° F. to 228° F. At 15 lb pressure, the temperature is 245° F. to 250° F.

Most canned, fresh or frozen vegetables, in addition to other foods such as rice, pasta, poultry, meats, fish, and shellfish, can be cooked in steamers.

Foods may be steamed in perforated or solid pans. Perforated pans are usually used, particularly for vegetables, unless the cooking liquid is retained or manufacturer's directions specify solid type pans. Pans are normally filled no more than 2/3 full to allow steam to circulate for even cooking.

Cooking times will vary depending on the type steamer, food, and temperature and quantity of the product. For best results follow the manufacturer's cooking times and directions. Cooking time should be scheduled to include bringing food up to cooking temperature, as well as steaming time. Timing begins when the pressure gauge registers 3 lb on the 5 lb steamer and 9 lb on the 15 lb steamer. Be sure to use timer, if available, to prevent overcooking.

After cooking is completed, the steam should be exhausted slowly for safety and to preserve skins of vegetables such as peas. Leave steamer doors ajar for cooling and to preserve door gaskets.

GUIDELINES FOR CONVECTION OVENS

A convection oven has a blower fan which circulates hot air throughout the oven, eliminating cold spots and promoting rapid cooking. Overall, cooking temperatures and times are shorter than in conventional ovens. The size, thickness, type of food, and amount loaded into the oven at one time will influence the cooking time.

TEMPERATURE SETTINGS: Follow the recommended temperature guide provided in the manufacturer's operating manual. If not available, follow the guidelines furnished on this card or check specific recipe for convection oven information. Note: At this time, not all AFRS oven recipes contain convection information. If food is cooked around the edges, but the center is still raw or not thoroughly cooked, or if there is much color variation, reduce the heat by 15° F. to 25° F. and return food to the oven. If necessary, continue to reduce the heat on successive loads until the desired results are achieved. Record most successful temperature on the recipe card for future reference.

TIME SETTING: Follow the recommended times provided in the manufacturer's operating manual. Should the manual not be available, follow the guidelines furnished on this card or check the specific recipe for convection oven information. Check progress halfway through the cooking cycle since time will vary with the quantity of food loaded, the temperature, and the type of pan used. NOTE: meat thermometers for roasting and visual examination of baked products are the most accurate methods of determining cooking times, both in convection ovens and in conventional ovens. Record most successful cooking time on the recipe card for future reference.

VENT DAMPER CONTROL SETTING: The vent damper control is located on or near the control panel. The damper should be kept closed for most foods of low moisture content such as roasts. If open during roasting, meats will be dry with excessive shrinkage.

The damper should be kept open when baking high moisture content foods (cakes, muffins, yeast bread, etc.). Leaving the damper closed throughout a baking cycle will produce cakes which are too moist and will not rise. A “cloud” or water droplets on the window indicate excessive moisture which should be vented out of the oven through the open damper.

FAN SPEED SETTINGS: SEE GENERAL NOTES BELOW.

INTERIOR OVEN LIGHTS: Turn on lights only when loading, unloading, or checking product. Continual burning of lights will result in short bulb life.

TIMER: The oven timer will ring only as a reminder; it has no control over the functioning of the oven. To ensure proper operation, wind the timer to the maximum setting, then turn back to the desired setting for the product.

GENERAL OPERATION:

1. Select and make the proper rack arrangement for the product to be cooked.
2. Turn or push the main power switch “ON” (gas oven - turn burner valve “ON”). Set thermostat to the recommended temperature. The thermostat signal light will light. Adjust fan speed on two-speed blower, if available (see General Notes below).
3. PREHEAT oven until thermostat signal light goes out indicating that the oven has reached the desired temperature. The oven should preheat to 350° F. within 10 to 15 minutes. (Note: To conserve energy, DO NOT turn on the oven until absolutely necessary - about 15 minutes before actual cooking is to start.)
4. OPEN oven doors and load the oven quickly to prevent excessive loss of heat. Load the oven from the top, centering the pans on the rack toward the front of the oven. Place partial loads in the center of the oven. Allow 1 to 2 inches between pans and along oven sides to permit good air circulation. Remember - overloading is the major cause of non-uniform baking and roasting.

GUIDELINES FOR CONVECTION OVENS

5. Close oven doors and set the timer for the desired cooking time. Check the baking/roasting progress periodically until product is ready.

CLEANING AND MAINTENANCE: Refer to the manufacturer's operating manual for cleaning and maintenance instructions.

GENERAL NOTES: Most convection ovens are equipped with an electric interlock which energizes/de-energizes both the heating elements and the fan motor when the doors are closed/open. Therefore, the heating elements and fan will not operate independently and will only operate with the doors closed.

(Only one known company manufactures an oven in which the fan can be controlled independently.) Some convection ovens are equipped with single-speed fan motors while others are equipped with two-speed fan motors. This information is particularly important to note when baking cakes, muffins or meringue pies, or similar products, and when oven-frying bacon. High speed air circulation may cause damage to the food (e.g., cakes slope to one side of the pan) or blow melted fat throughout the oven. Read the manufacturer's manuals and determine exactly what features you have and then, for the above products, proceed as follows.

Two-Speed Interlocked Fan Motor: Set fan speed to “low.”

Single-Speed Interlocked Fan Motor: Preheat oven 50° F. higher than the recommended cooking temperature. Load oven quickly, close doors, and reduce thermostat to recommended cooking temperature. (This action will allow the product to “set up” before the fan/heating elements come on again.)

Single-Speed Independent Fan Motor:

1. Preheat oven 25° F. above temperature specified in recipe.
2. Turn fan “OFF.”
3. Reduce heat 25° F.
4. Load oven quickly and close doors.
5. Turn fan “ON” after 7 to 10 minutes and keep “ON” for remaining cooking time.

EXCEPTION: Leave fan “OFF” for bacon to prevent fat from blowing throughout the oven. **READ AND UNDERSTAND THE MANUFACTURER’S MANUALS. THEY WILL MAKE YOUR JOB EASIER.**

Note: Equipment is becoming more and more complex as the “state-of-the-art” progresses. It is absolutely essential that proper operating manuals be read and understood by everyone who either uses or maintains food service equipment. If you do not have the proper manuals available, proceed with extreme caution so as not to damage or misuse this equipment. Local food service equipment dealers, and/or your service’s food service office should be contacted for assistance.

GUIDELINES FOR CONVECTION OVENS

FOOD	PAN SIZE (INCHES)	RECOMMENDED NO. OF SHELVES FOR ONE LOAD	RECOMMENDED TEMPERATURE (° F.)	TIME
BREADS				
Breads, yeast	10-1/2 by 5 by 3-1/2	3	375	30 min
Coffee cakes	18 by 26	4	325	15 min
Muffins	12-cup muffin pan	4	350	30 min
Rolls, yeast	18 by 26	4	350	10 to 15 min
Sweet rolls	18 by 26	4	325	15 min
CAKES				
Angel food	16 by 4-1/2 by 4-1/8	3	300	25 to 30 min
Layer	8 or 9	4	300	25 to 35 min
Loaf	16 by 4-1/2 by 4-1/8	3	325	65 min
Sheet	18 by 26	4	300 to 325	25 to 35 min
DESSERTS				
Brownies	18 by 26	4	325	25 to 30 min
Cookies, bar	18 by 26	5	325	15 min
Cookies, drop	18 by 26	5	325	12 min
Cookies, sliced	18 by 26	5	350	8 to 10 min
Pies, fruit	9	4	375	25 min

FOOD	PAN SIZE (INCHES)	RECOMMENDED NO. OF SHELVES FOR ONE LOAD	RECOMMENDED TEMPERATURE (° F.)	TIME
MEATS				
Bacon, oven fried	18 by 26	5	325	15 to 20 min
Chicken, quarters or pieces	18 by 26	5	350	30 min
Fish, baked or oven fried	18 by 26	4	325	15 to 20 min
Meatloaf	18 by 26	3	300	1 hr 15 min
Roasts, boneless,				
Beef	18 by 26	3	325	1 hr 45 min
Pork	18 by 26	3	325	1-1/2 hr to 2 hrs
Steak, grill (strip loin, ribeye roll, top sirloin butt)	18 by 26	7	400	See Recipe No. L00700
Turkey, boneless	18 by 26	3	325	3-1/2 to 4 hrs
MISCELLANEOUS				
Pizza	18 by 26	4	450	15 min
Potatoes, baked	18 by 26	5	400	35 to 40 min

GUIDELINES FOR USE OF TILTING FRY PANS

The tilting fry pan is a versatile piece of equipment. Although usually described as an oversized skillet because of its large flat cooking surface, this piece of equipment can perform almost any type of cooking except deep fat frying. The tilting fry pan can be used for braising, grilling, sautéing, pan frying, simmering, steaming, boiling, warming, and holding. The ability to tilt the pan allows for easy removal of food to the serving pans without heavy lifting. It can be used for successive cooking functions without having to move the food from one piece of equipment to another. The temperature dial is adjustable over a range of 200 F. to 400 F.

GENERAL OPERATION:

1. Turn or push main power switch to “on” position. The red light will signal that power is on.
2. Set thermostat to desired temperature. Yellow light will signal when heating unit has reached temperature. It will cycle on and off to maintain the temperature.
3. Preheat approximately 12 minutes before using as a griddle or fry pan.
4. To use as a steamer use 1 to 2 inches water with a rack for holding food above the water. Leave cover closed while steaming.
5. To use as a griddle, follow directions and temperature as shown on the recipe card.
6. For sautéing or pan frying, temperature should be between 300 F. and 365 F.
7. For simmering, temperature should be 200 F.

CLEANING AND MAINTENANCE: Refer to the manufacturer’s operating manual for instructions.

GUIDELINES FOR CAPACITIES OF STEAM TABLE AND BAKING AND ROASTING PANS

PANS	DEPTH (Inches)	USABLE CAPACITY (Quarts)	USABLE CAPACITY (1/2 Cup Portions)
<u>STEAM TABLE:</u>			
12 by 20 inch (full size)	2-1/2 4 6 8	7 13 18-1/2 27	56 104 148 216
12 by 10 inch (1/2 size)	2-1/2 4 6 8	3-1/2 6-1/2 9 12	28 52 72 96
6 by 12 inch (1/3 size)	2-1/2 4 6	2-1/2 4 6	20 16 24
6 by 10 inch (1/4 size)	2-1/2 4 6	1-2/3 2-2/3 4	13 21 32
<u>BAKING AND ROASTING:</u>			
18 by 24 inch	4-1/2	24	192
16 by 16 inch	4	8	64

NOTE: Usable capacity: Pans are filled to about 1/2 inch from the brim. If pans are to be used for carrying liquids (i.e., soups, gravies), the capacity should be reduced to half full.

METRIC CONVERSION

The metric system is an international language of measurement. Its symbols are based on the International System of Units (SI). Of these, food service preparation will be primarily involved with the following metric base units:

Weight (mass)	gram (g) kilogram (kg)
Volume	milliliter (mL) liter (L)
Length	centimeter (cm) meter (m)
Temperature	degree Celsius (°C.)

While the U. S. metric system is voluntary and the food service industry in the United States has not converted to metric system, except for a few soft conversions (e. g., labeling), military food service dining facilities/general messes outside CONUS may experience the metric system in food and equipment support provided by the host country. The information furnished in this guideline card is primarily for these food service personnel.

CONVERSION OF U. S. CUSTOMARY TO METRIC UNITS

	<u>U. S. Customary</u>	<u>Metric</u>
Weight (or Mass)	1 ounce (oz) = 1 pound (lb) = 2.2 pound (lb) =	28.35 grams (g) 453.6 grams (g) or .4536 kilograms 1 kilogram (kg) or 1000 grams (g)
Volume	1 tsp = 1 tbsp = 1 cup = 1 pint = 1 quart = 1 gallon = 1.06 quarts =	4.93 milliliters (mL) 14.79 milliliters (mL) 236.59 milliliters (mL) or .237 liters (L) .473 liters (L) .946 liters (L) 3.785 liters (L) 1 liter (L) or 1000 milliliters (mL)
Length	1 inch = 1 foot = 1 yard = 1.1 yards =	2.54 centimeters (cm) .3048 meters (m) 30.48 centimeters (cm) or .9144 meters (m) 1 meter (m) or 100 centimeters (cm)

GUIDELINES FOR METRIC CONVERSION - CONTINUED**Temperature Conversions**

<u>°F.</u>	<u>°C.</u>	<u>°F</u>	<u>°C.</u>
0	-18	212	100
26	-3	225	107
28	-2	228	109
30	-1	245	118
32	0	250	121
36	2	275	135
38	3	300	149
40	4	325	163
70	21	350	177
90	32	360	182
140	60	365	185
160	71	375	191
170	77	400	204
175	79	425	218
180	82	450	232
185	85	500	260
		550	288

GUIDELINES FOR CHEESES

USE OF DEHYDRATED CHEESES

Two types of dehydrated cheeses are used - dehydrated American cheese and dehydrated cottage cheese.

a. Cheese, Cottage, Dehydrated

(1) USE - Dehydrated cottage cheese may be substituted in any recipe using fresh cottage cheese.

(2) PREPARATION - Measure 8-1/2 cups water (70° F.) into a shallow serving pan. Pour 1-No. 10 cn (1 lb 1 oz) canned dehydrated cottage cheese evenly over the water. Stir gently to wet all particles of cheese. Let stand 5 minutes, then stir gently. If more water is needed, sprinkle 1/2 to 1 cup water over cheese. Chill rehydrated cheese thoroughly before serving (3 to 4 hours).

(3) SUBSTITUTION - Rehydration ratio - 1 pound dehydrated cottage cheese to 4 pounds (2 qt) water.

<u>Dehydrated Cheese</u>	<u>Water Added</u> = <u>Rehydrated Cheese</u>	<u>OR</u>	<u>Fresh Cheese Equivalent</u>
1-No. 10 cn (1 lb 1 oz (2-3/4 qt))	8-1/2 cups 5 lb oz (3 qt)		6 lb (3qt)
2-No. 10 cn (2 lb 2 oz (5-1/2 qt))	4-1/4 qt 10 lb 2 oz (6-1/4 qt)		12 lb (1-1/2 gal)

b. Cheese, American, Processed, Dehydrated

(1) **USE** - Dehydrated American processed cheese may be substituted in any recipe using processed American cheese. Rehydrate cheese before adding to any recipe to eliminate any un-rehydrated cheese in the end product. To store dehydrated cheese after being opened, place unused portion in a tightly covered container to prevent absorption of moisture. Refrigerate if possible.

(2) **PREPARATION** - Add water to cheese and mix until blended. For a moist semi-solid cheese, such as for an appetizer or omelet, use 1 lb (1 qt) dehydrated cheese and 1 cup water. For a semi-fluid cheese for sauces (better volume substitute), use 1 pound (1 qt) dehydrated cheese and 2 cups water.

(3) **SUBSTITUTION:**

<u>Dehydrated Cheese</u>	+	<u>WARM Water Added</u>	=	<u>Rehydrated Cheese</u>	<u>OR</u>	<u>Fresh Cheese Equivalent</u>
Semi-solid 6 oz (1-1/2 cups)		3/8 cup		1-1/8 cups		1 lb
3 1b (3 qt) 1-No. 10 cn		3 cups		2-1/4 qt		8 lb
Fluid 6 oz (1-1/2 cups)		3/4 cup		1-1/2 cups		1 lb
3 1b (3 qt) 1-No. 10 cn		1-1/2 qt		3 qt		8 lb

GUIDELINES FOR USING HERBS

The following information is provided as a guide in developing familiarity and creativity with using herbs. Start with a small amount, taste, then add more if necessary.

Herb	Appetizers Salad	Breads/Eggs Sauces/Cheese	Vegetables Pasta	Meat Poultry	Fish Shellfish
Basil	Green, Potato & Tomato Salads, Salad Dressing, Stewed Fruit	Breads, Fondue & Egg Dishes, Dips, Marinades, Sauces	Mushrooms, Tomatoes, Squash, Pasta, Bland Vegetables	Broiled, Roast Meat & Poultry Pies, Stews, Stuffing	Baked, Broiled & Poached Fish, Shellfish
Bay Leaf	Seafood Cocktail, Seafood Salad, Tomato Aspic, Stewed Fruit	Egg Dishes, Gravies, Marinades, Sauces	Dried Bean Dishes, Beets, Carrots, Onions, Potatoes, Rice, Squash	Corned Beef, Tongue Meat & Poultry Stews	Poached Fish, Shellfish Fish Stews

Guide to Cooking with Popular Herbs (continued)

Herb	Appetizers Salad	Breads/Eggs Sauces/Cheese	Vegetables Pasta	Meat Poultry	Fish Shellfish
Chives	Mixed Vegetables, Green, Potato & Tomato Salads, Salad Dressings	Egg & Cheese Dishes, Cream Cheese, Cottage Cheese, Gravies, Sauces	Hot Vegetables, Potatoes	Broiled Poultry, Rissoles, Poultry & Meat Pies, Stews, Casseroles	Baked Fish, Fish Casseroles, Fish Stews, Shellfish
Dill	Seafood Cocktail, Green, Potato & Tomato Salads, Salad Dressings	Breads, Egg & Cheese Dishes, Cream Cheese, Fish and Meat Sauces	Beans, Beets, Cabbage, Carrots, Cauliflower, Peas, Squash, Tomatoes	Beef, Veal Roasts, Lamb, Steaks, Chips, Stews, Roast & Creamed Poultry	Baked, Broiled, Poached & Stuffed Fish, Shellfish
Garlic	All Salads, Salad Dressings	Fondue Poultry Sauces, Fish and Meat Marinades	Beans, Eggplant, Potatoes, Rice, Tomatoes	Roast Meats, Meat & Poultry Pies, Hamburgers, Stews & Casseroles	Broiled Fish, Shellfish, Fish Stews, Casseroles
Marjoram	Seafood Cocktail, Green, Poultry & Seafood Salads	Breads, Cheese Spreads, Egg & Cheese Dishes, Gravies, Sauces	Carrots, Eggplant, Peas, Onions, Potatoes, Dried Bean Dishes, Spinach	Roast Meats & Poultry Meat & Poultry Pies, Stews & Casseroles	Baked, Broiled & Stuffed Fish, Shellfish

Guide to Cooking with Popular Herbs (continued)

Herb	Appetizers Salad	Breads/Eggs Sauces/Cheese	Vegetables Pasta	Meat Poultry	Fish Shellfish
Mustard	Fresh Green Salads, Prepared Meat, Macaroni & Potato Salads, Salad Dressing	Biscuits, Egg & Cheese Dishes, Sauces	Baked Beans, Cabbage, Eggplant, Squash, Dried Beans, Mushrooms, Pasta	Chops, Steaks, Ham, Pork, Poultry Cold Meats	Shellfish
Oregano	Green, Poultry & Seafood Salads	Breads, Egg & Cheese Dishes, Meat, Poultry & Vegetable Sauces	Artichokes, Cabbage, Eggplant, Squash, Dried Beans, Mushrooms, Pasta	Broiled, Roast Meats, Meat & Poultry Pies, Stews, Casseroles	Baked, Broiled & Poached Fish, Shellfish
Parsley	Green, Potato, Seafood & Vegetable Salads	Biscuits, Breads, Egg & Cheese Dishes, Gravies, Sauces	Asparagus, Beets, Eggplant, Squash, Dried Beans, Mushrooms, Pasta	Meat Loaf, Meat & Poultry Pies, Stews and Casseroles, Stuffing	Fish Stews, Stuffed Fish
Rosemary	Fruit Cocktail, Fruit & Green Salads	Biscuits, Egg Dishes, Herb Butter, Cream Cheese, Marinades, Sauces	Beans, Broccoli, Peas, Cauliflower, Mushrooms, Baked Potatoes, Parsnips	Roast Meat, Poultry & Meat Loaf, Meat & Poultry Pies, Stews & Casseroles, Stuffing	Stuffed Fish, Shellfish

Guide to Cooking with Popular Herbs (continued)

Herb	Appetizers	Breads/Eggs	Vegetables	Meat	Fish
Sage	Salad	Sauces/Cheese Breads, Fondue, Egg & Cheese Dishes, Spreads, Gravies, Sauces	Pasta Beans, Beets, Onions, Peas, Spinach, Squash, Tomatoes	Poultry Roast Meat, Poultry, Meat Loaf, Stews, Stuffing	Shellfish Baked, Poached, & Stuffed Fish
Tarragon	Seafood Cocktail, Avocado Salads (all), Salad Dressings	Cheese Spreads, Marinades, Sauces, Egg Dishes	Asparagus, Beans, Beets, Carrots, Mushrooms, Peas, Squash, Spinach	Steaks, Poultry, Roast Meats, Casseroles & Stews	Baked, Broiled & Poached Fish, Shellfish
Thyme	Seafood Cocktail, Green, Poultry, Seafood & Vegetable Salads	Biscuits, Breads Egg & Cheese Dishes, Sauces, Spreads	Beets, Carrots, Mushrooms, Onions, Peas, Eggplant, Spinach, Potatoes	Roast Meat, Poultry & Meat Loaf, Meat & Poultry Pies, Stews & Casseroles	Baked, Broiled & Stuffed Fish, Shellfish, Fish Stews

HAZARD ANALYSIS CRITICAL CONTROL POINT (HACCP)

HACCP System: A food safety system that identifies hazards and develops control points throughout the receiving, storage, preparation, service and holding of food. This system is designed to prevent foodborne illness.

- **Critical Control Point (CCP):** A point in a specific food service process where loss of control may result in an unacceptable health risk. Implementing a control measure at this point may eliminate or prevent the food safety hazard.
- **Critical Limits:** Elements such as time and temperature that must be adhered to in order to keep food safe. The Temperature Danger Zone is defined by the Food and Drug Administration's Food Code as 41° F. to 140° F.
- **Foodborne Illness:** An illness transmitted to humans through food. Any food may cause a foodborne illness, however *potentially hazardous foods* are responsible for most foodborne illnesses. Symptoms may include abdominal pain/cramps, nausea and vomiting.
- **Potentially Hazardous Food:** A food that is used as an ingredient in recipes or served alone that is capable of supporting the growth of organisms responsible for foodborne illness. Typical foods include high protein foods such as meat, fish, poultry, eggs and dairy products.

COOKING TEMPERATURES <i>These temperatures represent the minimum required temperature. The time represents the minimum amount of time the temperature must be maintained.</i>	
Eggs, Raw shell eggs	155° F. for 15 seconds
Eggs, Egg products, pasteurized	145° F. for 15 seconds
Poultry	165° F. for 15 seconds
Pork	145° F. for 15 seconds
Whole Beef Roasts and Corned Beef Roasts	145° F. for 3 minutes
Fish	145° F. for 15 seconds
Stuffed meat, fish, poultry or pasta, OR stuffings containing meat, fish or poultry	165° F. for 15 seconds
Meat or fish that has been reduced in size by methods such as chopping (i.e., beef cubes), grinding (i.e., ground beef, sausage), restructuring (i.e., formed roast beef, gyro meat), or a mixture of two or more meats (i.e., sausage made from two or more meats)	155° F. for 15 seconds
CCP: SERVING AND HOLDING (hot foods)	140° F.
COOLING <i>FDA recommends a cooled product temperature of 41° F. In order to achieve a cooled internal product temperature of 34-38° F., the temperature of the refrigerator must be lower than 41° F.</i>	<p>Cooling from 140° F. to 70° F. should take no longer than 2 hours.</p> <p>Cooling from 70° F. to 41° F. should take no longer than 4 hours.</p>

GUIDELINES FOR COMBI-OVENS

A combi-oven is a versatile piece of equipment that combines three modes of cooking in one oven: steam, circulated hot air or a combination of both. The combi mode is used to re-heat foods and to roast, bake and “oven fry.” The steam mode is ideal for rapid cooking of vegetables and shellfish. The hot air mode operates as a normal convection oven for baking cookies, cakes and pastries. The combi mode decreases overall cooking times, reduces product shrinkage and eliminates flavor transfer when multiple items are cooked simultaneously.

OVEN MODES

COMBI MODE: Use to roast and braise meats, bake poultry and fish and reheat prepared foods. The combination of steam and hot air will improve yield and reduce overall cooking times. To **OVEN FRY**, use food items that are labeled “ovenable” by the manufacturer. Refer to cooking guidelines for oven frying individual items. Place items on perforated sheet pan in a single layer. **DO NOT** place excess amount of product on pan. A solid sheet pan may be placed under perforated pan to catch excess oils and eliminate smoke.

HOT AIR MODE: Use to bake cakes, cookies and breads and to roast and bake meats and poultry. The hot air mode circulates air in the same manner as a convection oven.

GUIDELINES FOR COMBI-OVENS (continued)

STEAMING MODE: Use to steam fresh, frozen or canned vegetables and shellfish. Use of the Combi-oven to steam foods can save time, labor, and help maintain appearance, and preserve nutrients normally lost by other cooking methods. The oven is ideal for steaming more than one type of vegetable at the same time without flavor transfer. Foods may be steamed in perforated or solid pans. Perforated pans are generally used, particularly for vegetables, unless the cooking liquid is retained or manufacturer's directions specify solid pans. Pans are normally filled no more than 2/3 full to allow steam to circulate for even cooking.

Steam temperature is preset at 212° F. The cooking time will vary depending on the type of food and the number of pans in the oven. The cooking time should include the time it requires to heat food up to cooking temperature, as well as steaming.

TEMPERATURE SETTING: At this time the AFRS recipes do not contain combi-oven information. Refer to the attached cooking guidelines for individual items or begin by using the recommended convection oven temperature noted on individual recipes. If food is cooked around the edges, but the center is still raw or not thoroughly cooked, or if there is too much color variation (some is normal), turn pan or reduce the heat by 10° F. to 15° F. and return food to the oven and continue cooking until done.

TIME SETTING: Follow the recommended convection cooking times on recipe cards. Check progress halfway through the cooking cycle since times will vary in the Combi mode with the quantity of food being cooked, the temperature, and the type of pan used.

GUIDELINES FOR COMBI-OVENS (continued)

MEAT PROBE: The meat probe measures a product core temperature during the cooking process.

FAN SPEED SETTING: See general operations notes below.

GENERAL OPERATION NOTES:

1. **OVEN RACKS:** Position oven racks for the number of pans and product to be cooked.
2. **WATER SUPPLY:** Verify water supply is on.
3. **SELECT COOKING MODE AND TEMPERATURE:** Turn oven on; SELECT the cooking mode. To cook in the combi or hot air mode, set thermostat to desired temperature. To cook in the steam mode, set thermostat to 200° F. The thermostat light will come on indicating oven temperature is below set point.
4. **PREHEAT:** Heat oven until thermostat light goes out indicating that the oven has reached the set temperature. The oven should preheat to 350° F. within 10 to 15 minutes.
5. **FAN SPEED:** If two-speed fan is available, adjust the fan to recommended speed noted on individual recipe card. NOTE: The Combi-oven is equipped with electric interlock, which energizes/de-energizes both the heating element and fan motor when the doors are closed and open. Therefore, the heating elements and fan will not operate with the doors open, only when closed.

GUIDELINES FOR COMBI-OVENS (continued)

- 6. MEAT PROBE:** Insert the meat probe in the thickest section of the product. **NOTE:** The tip of the probe should not be placed near bone or fat. This will result in inaccurate temperature readings. Turn the meat probe switch on and set the desired core temperature by using the up or down arrows. Press the set button to store the set point temperature. Set the timer to the STAY ON position. When the selected core temperature is reached the buzzer will sound and the oven automatically turns off.
- 7. CLEANING AND MAINTENANCE:** Refer to the manufacturer's operating manual for cleaning and maintenance instructions. **NOTE:** Wipe out all spills as soon as they occur for ease of cleaning.

COMBI-OVEN COOKING GUIDELINES

Food	Cook Mode	Recommended Temperature	Time
MEATS			
Steak	Hot Air	400	See Recipe No. L 007 00
Bacon, oven fried	Hot Air	325	25-30 minutes
Roasts, boneless			
Beef	Combi	325	1 hr 45 minutes
Pork	Combi	325	2 to 2-1/2 hours
Spareribs	Combi	350	1 to 1-1/2 hours
Meatloaf	Combi	300	1 hour

GUIDELINES FOR COMBI-OVENS (continued)**COMBI-OVEN COOKING GUIDELINES**

Food	Cook Mode	Recommended Temperature	Time
POULTRY			
Turkey, boneless	Combi	325	2 to 2-1/2 hours
Chicken, pieces (with bone)	Combi	350	20-30 minutes
FISH			
Fish, baked	Combi	325	10-20 minutes
Shrimp, raw, frozen	Steam	Preset	3-5 minutes
MISCELLANEOUS			
Casserole type dishes			
Macaroni & cheese	Combi	325	15-20 minutes
Lasagna	Combi	300	40-50 minutes
BREADS			
Breads, yeast	Hot Air	375	30 minutes
Coffee cakes	Hot Air	325	15 minutes
Muffins	Hot Air	350	30 minutes
Rolls Yeast	Hot Air	350	10-15 minutes
Sweet rolls	Hot Air	325	15 minutes

GUIDELINES FOR COMBI-OVENS (continued)**COMBI-OVEN COOKING GUIDELINES**

Food	Cook Mode	Recommended Temperature	Time
EGGS			
Hard Cooked Eggs	Steam	Preset	12 minutes
CAKES			
Angel Food	Hot Air	300	30-35 minutes
Layer	Hot Air	300	25-35 minutes
Loaf	Hot Air	325	65-75 minutes
Sheet	Hot Air	300-325	25-35 minutes
DESSERTS			
Brownies	Hot Air	325	25-30 minutes
Cookies	Hot air	325	12-15 minutes
Pies, Fruit	Hot air	375	25 minutes
VEGETABLES			
Frozen	Steam	Preset	12-15 minutes
Canned	Steam	Preset	10-12 minutes
Fresh*	Steam	Preset	*See individual recipe cards

GUIDELINES FOR COMBI-OVENS (continued)**COMBI-OVEN COOKING GUIDELINES**

Food	Cook Mode	Recommended Temperature	Time
OVEN FRYING			
French Fries	Combi	400	7-9 minutes
Fish Portions	Combi	400	10-12 minutes
Shrimp, Battered	Combi	400	7-8 minutes
Chicken Pieces	Combi	400	20 minutes
Chicken Nuggets	Combi	400	8-14 minutes
Onion Rings	Combi	400	6-8 minutes
Jalapeno Popper	Combi	400	9-12 minutes
Egg rolls	Combi	400	12-18 minutes

GUIDELINES FOR COMBI-OVENS (continued)**COMBI-OVEN COOKING GUIDELINES**

Food	Cook Mode	Recommended Temperature	Time
EGGS			
Hard Cooked Eggs	Steam	Preset	12 minutes
CAKES			
Angel Food	Hot Air	300	30-35 minutes
Layer	Hot Air	300	25-35 minutes
Loaf	Hot Air	325	65-75 minutes
Sheet	Hot Air	300-325	25-35 minutes
DESSERTS			
Brownies	Hot Air	325	25-30 minutes
Cookies	Hot air	325	12-15 minutes
Pies, Fruit	Hot air	375	25 minutes
VEGETABLES			
Frozen	Steam	Preset	12-15 minutes
Canned	Steam	Preset	10-12 minutes
Fresh*	Steam	Preset	*See individual recipe cards

GUIDELINES FOR COMBI-OVENS (continued)**COMBI-OVEN COOKING GUIDELINES**

Food	Cook Mode	Recommended Temperature	Time
OVEN FRYING			
French Fries	Combi	400	7-9 minutes
Fish Portions	Combi	400	10-12 minutes
Shrimp, Battered	Combi	400	7-8 minutes
Chicken Pieces	Combi	400	20 minutes
Chicken Nuggets	Combi	400	8-14 minutes
Onion Rings	Combi	400	6-8 minutes
Jalapeno Popper	Combi	400	9-12 minutes
Egg rolls	Combi	400	12-18 minutes

GUIDELINES FOR SKITTLE

A skittle is a multipurpose piece of equipment that can be used as a pressureless steamer, braising pan or griddle. The griddle mode is ideal for cooking steaks, sandwiches, eggs, pancakes, breakfast meats and potatoes. The steam mode may be used to cook vegetables, seafood, rice and pasta. The braising mode is used for slow moist-heat cooking of meats, poultry and vegetables.

TO OPERATE AS A STEAMER:

1. Add 5 gallons (2"- 3") of water to the skittle using the spray hose.
2. Position steaming racks for the number of pans and product to be cooked.
3. Close the lid and the steam vent.
4. Set the thermostat at 350° Fahrenheit and allow 6-8 minutes to preheat. The skittle is ready when the heater power light goes out.
5. When the skittle is preheated, raise the lid to the top of the steamer racks and place food pans in the racks and close the lid. **(NOTE: To retain maximum steam, do not raise the lid beyond steamer racks. The lid should be kept in a horizontal position)**
6. If steam escapes from the closed lid, open the rear vent until excess is released.

The skittle is ideal for steaming more than one type of vegetable at the same time without flavor transfer. Foods may be steamed in perforated or solid pans. Perforated pans are normally used, particularly for vegetables, unless the cooking liquid is retained or manufacturer's directions specify solid pans. Pans should not be filled more than 2/3 to the top to allow steam to circulate for even cooking.

Cooking times will vary depending on the type of food and the number of pans used. The cooking time should include the time it requires to heat food up to cook temperature, as well as steaming. Be sure to record the most successful steaming times on individual recipe cards for future reference.

TO OPERATE AS A BRAISING PAN:

1. Set the thermostat at 375° Fahrenheit and allow 6-8 minutes to preheat. The skittle is ready when the heater power light goes out. Brown food according to individual AFRS recipe card instructions.
2. Lower temperature to 325° Fahrenheit and add cooking liquid. Lower hood and cook according to individual recipe card instructions.
3. To remove liquid, tilt the pan 10° using the tilt handle and drain the liquid through the drain valve into a food pan.

The Skittle may be used for braising pot roast, Swiss steaks, spareribs, stews and for preparing gravy, soups and sauces. Cooking times will vary according to individual foods and amount prepared.

TO OPERATE AS A GRIDDLE:

1. Set the thermostat to 350° Fahrenheit and allow 6-8 minutes to preheat. The griddle is ready when the heater power light goes out.
2. Raise the lid and cook foods according to individual AFRS guideline cards.
3. To drain any accumulated grease, place a #10 can into the can holder attached to the drain valve. Tilt the pan 10° using the tilt handle and allow grease to drain into the can. The griddle can be used to cook hamburgers, steak, sandwiches, eggs, pancakes, breakfast meats and potatoes. Heat is distributed evenly over the entire pan surface ensuring food products cook uniformly.

GUIDELINES FOR SKITTLE (continued)

GENERAL OPERATION NOTES:

- 1. STEAMING MODE:** The recommended thermostat temperature for steaming is 350° Fahrenheit. Higher temperatures may be used but water will evaporate quickly and cooking time will not be decreased.
- 2. WATER SUPPLY:** The easiest way to fill the skittle with water is with the attached flexible spray hose.
- 3. SELECT COOKING TEMPERATURE:** SELECT desired cooking temperature according to cook mode or individual recipe cards. The thermostat light will come on indicating oven temperature is below set point.
- 4. PREHEAT:** Heat Skittle until thermostat light goes out indicating that the unit has reached the set temperature. The Skittle should preheat to 350° F. within 6 to 8 minutes. (Note: Lower the lid for faster preheating.)
- 5. CLEANING AND MAINTENANCE:** Remove food waste. Fill the pan with warm water using the spray hose. Add mild detergent and scrub with a nylon scrub pad if necessary. Tilt the pan 10° using the tilt handle and allow water to drain into container placed directly under the drain valve. Rinse with clean water and drain again. Refer to the manufacturer's operating manual for cleaning and maintenance instructions.

GUIDELINES FOR USE OF CONVENIENCE PREPARED FOODS

Convenience prepared foods reduce labor since they only require heating. Specific cooking instructions should be located on each advanced foods package. Items to be considered when using convenience prepared foods are cooking times, nutrient content and serving size. Cooking times, nutrient content and serving size will vary among manufacturers for identical food items, therefore, in order to maintain the quality of these convenience prepared foods, instructions must be read and followed every time a convenience prepared food is utilized.